

PRAGMA'S

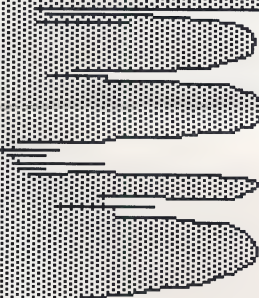
Distributed
FREE
to over 4,000 Pick installations!

PRODUCT PROFILES

News and Information for Pick™ Operating System Users

Issue Number 28

July 1986



**LOCATE
ATTRIBUTE**

**SOFT
FILE**

**Is BASIC
faster than
Access?**

207 GRANADA DRIVE
APTOS, CA 95003

BULK RATE
U.S. POSTAGE
PAID
APTOS, CA 95003
Permit No. 67

Address Correction Requested

Pragma's PRODUCT PROFILES

Issue #28 • July 1986

Product Profiles is published periodically by:

Semaphore Corporation
207 Granada Drive
Aptos, CA 95003

Telephone 408-688-9200

Entire contents copyright © 1986 by Semaphore Corporation • All rights reserved • No part of this publication may be reproduced in any form or by any means without prior written permission from Semaphore Corporation • Semaphore offers no warranty, either express or implied, for any losses due to the use of any material published in *Product Profiles* • Subscriptions are free, but are available only to Pick operating system users in the USA • Back issues are available by sending a stamped, self-addressed envelope • All material received will be considered for publication • Semaphore reserves the right to edit all submittals • Please tell us your mailing label number when calling or writing • Semaphore cannot be responsible for missing or lost issues • Send your new address at least four weeks before moving • Pick is a trademark of Pick Systems • Semaphore Corporation and its publications are not affiliated with Pick Systems.

Does Your Mailing Label Say RENEW?

If the mailing label on this issue says
RENEW, your free subscription has expired.
To avoid missing the next issue, renew
immediately by returning this coupon!

Name: _____

Company: _____

Address: _____

City/State/ZIP: _____

Telephone: _____

I use the Pick operating system and my mailing
address is in the USA. Please continue sending
me *Pragma's Product Profiles* free of charge.

Signature: _____

Date: _____

Return this form to:

Pragma • 207 Granada Drive • Aptos, CA 95003

Is BASIC Faster Than Access?

"When I was first exposed to the Pick operating system, I thought Access was a terrific tool. It was great to be able to create and change all kinds of reports with fairly simple, non-procedural commands, instead of having to write BASIC code. And it looked like my installation's users could create all kinds of ad hoc Access inquiries and reports without having to wait for me to do it for them. But those expectations gradually wore off. Most office workers are just not inspired enough to try and use Access for anything but the most trivial commands. Subtotal breaks, exploding sorts, command syntax, correlatives, and the myriad other Access features and details eventually made them throw up their hands and go back to their user-friendly spreadsheets, leaving Access behind as just another programmer's tool, instead of exploiting it as a user's tool. I also discovered that there were a lot of things Access just couldn't do, like descending subtotals and handling submultivalues. My correlative programming would often get out of hand and end up as long, tricky, hard-to-understand expressions, especially before if-then-else and A-correlatives became available. Sometimes I ended up spending more time creating a report with Access than I would have if I had used BASIC instead. Eventually I realized that Access isn't always the best tool for generating a required report. Sometimes it's better to just let a BASIC program handle all that logic and output. There are even circumstances when BASIC will output a report much faster than Access anyway."

— An experienced Pick programmer

Is that true? Can a Pick machine sometimes output a report significantly faster by using BASIC instead of Access? Yes, it's true, and we recently proved it to ourselves rather dramatically here at Semaphore when we examined the programming behind a simple, but frequently required report we use.

One of our customer files contains just over 14,000 items, and attribute two of each item contains a geographic "region" code. The report in question simply sorts the regions and lists the number of items in each. Our first version of the Access proc to generate the report was essentially the following:

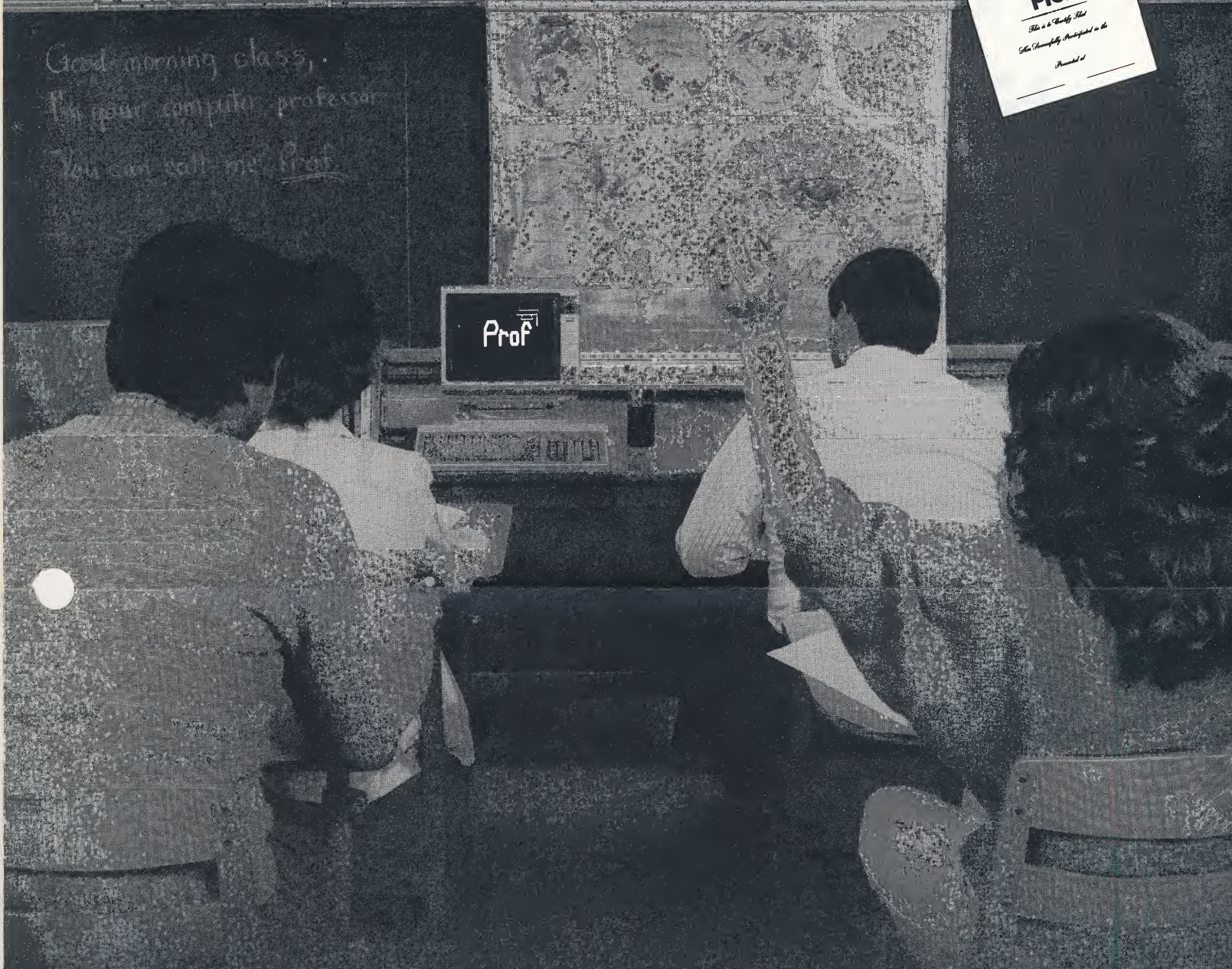
REPORT

```
001 PQ
002 H SORT CUSTOMERS BY REGION
003 H BREAK-ON REGION
004 H TOTAL COUNT DET-SUPP
005 P
```

The REGION and COUNT dictionary definitions are straightforward items to reference attribute two and to

GET AN EDUCATION!

Now you can get an education on PICK® at home, in the office or anywhere you've got a PICK-based computer system and a CRT terminal.



Higher Education with PROF Software.

No longer will you be tardy at understanding the PICK database, TCL, EDITOR, ACCESS, PROC, and BASIC. With the PROF electronic learning system you can master the fundamentals of PICK on your own, at your own pace. PROF can be used *on site* over and over again by DP Managers to train new employees without the use of costly seminars. A complete PICK education is now available right on your computer system.



PROF leads you through simulated, hands-on work sessions in which you actively participate. You try every important command and carefully review the way the system responds to each. It all happens right on the terminal. There is no book to hold in your lap.

PICK is a registered trademark of PICK systems, Irvine, California
Prime INFORMATION is a registered trademark of Prime Computer, Inc.

The time to get an education is now! You can order PROF for your PICK, Microdata, or Prime INFORMATION™ system by writing or calling us at:

CRESCENDO Associates, Inc.

24350 Joy Road, Suite 9 Redford Township, Michigan 48239 (313) 537-1919

YES! Please send me more information about PROF.

Name _____
Company _____
Address _____
City _____ State _____ Zip _____
Phone () _____
Computer System _____

Please fill out or attach business card and return.

Pick our brains.

The Pick System is designed to be user friendly. Now, Pick is offering three courses to make it a fast friendship.

These courses cover a range of instruction for everyone from the Pick novice to the advanced programmer. What really makes these courses unique is that they come from the original source — Pick Systems itself. All the

courses embody Dick Pick's philosophy on data processing, and each one is taught by an instructor who is current on the

latest developments in the system. This is your chance to pick our brains about the Pick System. For additional information send in the form to Pick Systems 1691 Browning, Irvine, California 92714 or call (714) 261-7425.

PICK
SYSTEMS

Please send a registration application and course schedule to:

Name _____
Title _____
Company _____
Address _____
City/State/Zip _____
Phone _____

ZEBRA

HARDWARE & PERIPHERALS

SO CAL FIELD SERVICE
WE BUY USED ZEBRAS

ATKIN/JONES

COMPUTER SERVICE

(714) 953-4351

Pick™ MAILING LISTS

Select from thousands of users.
Only 39¢ per name, postage included!

P/Mail by Marianne
1893 Nadina Street
Seaside, CA 93955

generate the constant "1" for totaling on each BREAK:

REGION	COUNT
001 S	001 S
002 2	002 0
003 REG	003
008	008 F;"1"
009 L	009 R
010 3	010 10

Our REPORT proc worked just fine, correctly listing the totals we wanted, by region. However, we found the proc took 20.5 minutes to run, longer than we expected or really wanted to wait.

Somehow, we got the idea of using a BASIC program to generate the report instead. Perhaps noticing that a lot of sorting had to be done before the first Access subtotal ever appeared was what gave us the idea. In any case, it didn't take long to construct the following program to generate the same report:

```
REPORT
001 OPEN "CUSTOMERS" ELSE STOP
002 VAL.LIST=""; COUNT.LIST=""; IN.LIST=0
003 SELECT
004 100 *
005 READNEXT ID ELSE
006 TOTAL = 0
007 FOR I = 1 TO IN.LIST
008 PRINT VAL.LIST<I>"L#3":
COUNT.LIST<I>"R#10"
009 TOTAL = TOTAL + COUNT.LIST<I>
010 NEXT I
011 PRINT TOTAL "R#13"
012 STOP
013 END
014 READV VAL FROM ID, 2 ELSE VAL = "?"
015 LOCATE(VAL, VAL.LIST; POS; "AL") ELSE
016 VAL.LIST = INSERT(VAL.LIST, POS; VAL)
017 COUNT.LIST = INSERT(COUNT.LIST, POS; 0)
018 IN.LIST = IN.LIST + 1
019 END
020 COUNT.LIST<POS> = COUNT.LIST<POS> + 1
021 GO TO 100
022 END
```

Notice that the program simply builds a sorted list of region values as it encounters them while stepping through every item in the file. Corresponding to the list of values is a list of counts, keeping track of how many times each value occurs in the file. By changing the file name in line 001 and the attribute number in line 014 (and the "AL" sort specifier in line 015 if necessary), the program can easily generate a subtotal list for any attribute in any file. (Our file doesn't have null region values. Can you tell why that makes a difference to the program?)

Imagine our surprise when we found that our BASIC program could generate the same report as our Access proc, but in only just over 7 minutes, or almost three times faster! Naturally, we now always use the BASIC

Experienced Computer Systems

If you are considering the purchase of a computer system, contact us. We usually have a variety of systems available for quick delivery. We also stock new and used disk drives, tape sub-systems, memory,

communications controllers and whatever else you may require.

We also will provide useful information on the manufacturers' product line, policies and license fees.

And...we will take your existing system in trade but let you keep it during your conversion.

**A TELEPHONE CALL
TO US COULD SAVE
YOU A PILE OF MONEY!**

• **FOR PRIME:**

Don Shifris
2001 E. Campbell Ave.
Phoenix, AZ 85016
(602) 957-0999

• **FOR MICRODATA, ADDS
MENTOR, GENERAL
AUTOMATION ZEBRA,
ULTIMATE AND OTHER
PICK™ TYPE SYSTEMS:**

Bill Cargile
783 Old Hickory Blvd.
Brentwood, TN 37027
(615) 373-2570

Ist solutions INC.

Microdata™ Systems & Upgrades

Reality

128 MB Reflex II
50 MB Reflex I
128 K Mos Memory
Intelligent 8-Ways
Tape Drives
Complete Systems

Sequel

IMB Memory
ACLC
Disc Drives
Controllers
Complete Systems

- Quick Delivery
- Competitive Prices
- Trade-Ins Accepted
- Professional Service
- Repair
- New Or Used
- Maintenance Guarantee
- Adds, Wyse Crt's

Printronix Printers

BUY SELL TRADE

EASTCOMP II INC.

CALL CHUCK HAAS
513-528-5400

MICRODATA EQUIPMENT FOR SALE

(1) Sequel 9000 VMS System

- Base system
- Possibility of selling manufacturing software with base system

Miscellaneous

- 1 256 MB Fujitsu Disc
- 1 MB Memory
- 4 ACLC
- 1 5750 Communications Terminal
- 5 Prism IV Terminals
- 2 Microdata Reality Systems
- Make offer

Contact: Priscilla Cain
Flow Systems, Inc.
(206) 872-4900

Buy, Sell, Trade In and Service

PICK SPECIALISTS

ADDS MENTOR	ULTIMATE
MICRODATA	PRIME
GA ZEBRA	PRINTRONIX
CIE	WYSE

- *New and Used Systems*
- *Peripherals and Upgrades*
- *Immediate Delivery*
- *Savings up to 60%*
- *Repair and Refurb Services*



BAYSIDE
COMPUTER CORPORATION

(415) 490-8733

program instead of the Access proc whenever we need region totals for our customer file.

(One final note. Notice that technically, the BASIC program is really equivalent to:

```
REPORT
001 PQ
002 H SORT CUSTOMERS
003 H BY REGION
004 H BREAK-ON REGION "'L'"
005 H TOTAL COUNT
006 H ID-SUPP
007 H DET-SUPP
008 H COL-HDR-SUPP
009 P
```

since the subtotals aren't double-spaced, and there isn't any ID column or page or column headings, although those could easily be added to the BASIC program.) Δ

This month's mailbag

Dear Pragma: The question of separation (see *The Myth of Separation=1* in the last issue) is not as simple as you imply. While such performance improvements may be true for the COUNT verb, they're not nearly as good for other verbs such as SORT and SSELECT, which is what most people use.

I ran a few tests on a file with 1626 items and an average item size of 116. The two file allocations I tried were 461,1 and 223,2 and were chosen so that at least 90% of the data fit in the allocated frames. A procedure SSELECTed the entire file and was followed by a program which MATREADU every item. The 13th attribute was used for the SSELECT criteria.

After four trials on each file, I found that separation=2 caused a 12.4% faster SSELECT, but a 8.8% slower MATREADU, for an overall increased run time of .25 seconds. After two trials SORTing the 13th attribute and listing eight attributes to a hold file, I found that separation=2 gave a 12.2% faster SORT.

I suspect that group size was the primary reason for the poorer performance in the BASIC program. I also think that WRITES would be substantially slower with a separation of 2 or more because work would have to be done to reorganize the group. I did, however, save about 100 frames of disk space with a separation of 2.

One strategy implied by my findings is that if you process a relatively large percentage of a file with a BASIC program, a separation of 1 might be called for. If it's a small percentage, a separation of 2 might yield better overall results.

It appears that the issue of separation is not one to be taken lightly. The amount and kinds of activity against a file need to be carefully considered.

David Aitken, Denver, CO

Note that our original recommendation said "If a file's groups occupy more than one frame, let the separation equal the actual frames per group". In general, we think it's always preferable to first try to have single frame groups, and only worry about separation if groups are going into overflow. (Our original benchmark was comparing how COUNT did on a file with different separations, but with the modulo unchanged, to show how much faster groups with contiguous frames could be processed compared to groups with linked frames.)

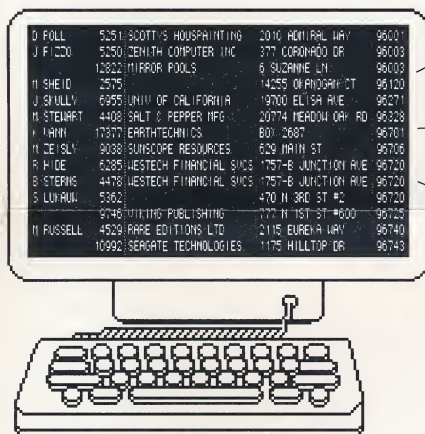
We wonder how BASIC performs when items are longer than 500 bytes, so that groups have to be larger than one frame regardless of the chosen separation. -Editors

Tired of waiting for your
Pick™ computer to **SORT** or
SELECT your large data files?

Need to quickly find *any*
attribute? Want to scroll files
up *or* down, in any sort order?

Now you can use B-TREE-P to instantly search, sort, and scroll any data from any Pick file!

Now you can instantly look up customers by name, street, Zip code, or any other field — not just by customer number. Now you can immediately find inventory entries by quantity, cost, or description — not just by part number. Whatever files you use, now you can instantly locate and display your data *any way you want*, without having to wait for endless **SORTs** and **SELECTs**.



Immediately display any record in any file just by typing one or more starting characters that match *any* field in the record.

You can display not only a selected record, but also any previous and next records, using *any* sort order you specify.

You can jump to any record in a file at any time, then browse through the file by scrolling up *or* down, a record at a time, or a page at a time, in *any* sort order.

Ask us for a free copy of Product Profiles #24, describing how B-TREE-P was originally developed and put to work. As one of Semaphore's programmers says: "We often ask ourselves why we waited so long to create B-TREE-P. After using it for our own production work, we wonder how we ever got by before without it. A Pick computer without B-TREE-P is like a car without wheels".

B-TREE-P is a proven collection of BASIC subprograms for using B-trees on Pick computer systems. B-trees allow any of the data in any of your Pick files to be instantly located and displayed in any sort order, without having to wait for **SORT** or **SELECT** commands.

B-TREE-P and a few minor modifications to your existing data entry programs are all that is necessary for you to immediately be able to search, display, and browse through your data quickly and conveniently.

Modifications to your existing data files are absolutely unnecessary!



Pick is a trademark of Pick Systems.

B-TREE-P includes all necessary BASIC source code for a B-tree system that works with any file:

- Insertion subroutine
- Deletion subroutine
- Lookup subroutine
- Previous/next subroutine
- Complete instructions

Plus, you receive the source code for a complete demonstration system that uses B-TREE-P to maintain a name and address file:

Editor program for creating and changing names and addresses.

Browser program for displaying names and addresses.

Printer program for listing file items in order without having to wait for a sort.

Here's how to order:

Send your name, address, telephone number, and your check for \$395 payable to Semaphore Corporation to:

*Semaphore Corporation
207 Granada Drive
Aptos, CA 95003*

We'll send you complete B-TREE-P source code listings and all necessary documentation.

Call us at (408) 688-9200!

WARNING: B-TREE-P includes a license agreement with copy, use, and transfer restrictions limiting your use of B-TREE-P to one computer at a time. Multi-CPU and OEM resale agreements are also available.

Made for
PICK!!



- Altos 3068 Features:
- Microprocessor — 32 Bit MC68020
 - Cache Memory —
On chip: 256 Bytes
On board: 8 KB 2-
set associative data
in instruction cache
 - Bus — 32 Bit data bus
 - Main Memory — 1-8 MB
 - Hard Disk —
Up to 195 MB
Formatted
Track caching
 - Streaming Tape —
60 MB:
90 IPS
 - Floppy Disk —
1.2 MB



The 68020-based Altos 3068.

If you're a PICK software developer or dealer, you owe it to yourself to see a demonstration of the forty-user Altos 3068.

Call this number, and we'll make the arrangements.

(800) ALTOS U.S.

PICK is a trademark of Pick Systems.



COMPUTER SYSTEMS
2641 Orchard Parkway
San Jose, CA 95134

WE SUPPORT PICK.